



PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Confirmation Number: 8925

Takasugi, et al.

Group Art Unit: 2172

Serial No.: 10/091,778

Examiner: Jean M. Corrielus

Filed: 3/6/02

Docket No. 10018457-1

**FOR: BUFFER MANAGEMENT FOR DATA TRANSFERS
BETWEEN A HOST DEVICE AND A STORAGE MEDIUM**

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop: AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The final Office Action mailed October 6, 2005 has been carefully considered. Claims 1 and 3 - 24 remain pending. Please consider the following remarks.

AUTHORIZATION TO DEBIT ACCOUNT

It is not believed that extensions of time or fees for net addition of claims are required, beyond those which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to deposit account no. 08-2025.

REMARKS

I. Rejections Under 35 U.S.C. §103 are Improper Because *Gharachorloo* May Not be Properly Applied as a Prior Art Reference

The final Office Action indicates that claims 3 – 6 and 10 - 24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Siegel* in view of *Gharachorloo*. Applicants respectfully traverse the rejection. In this regard (and as set forth in Applicants' previous response), Applicants respectfully assert that *Gharachorloo* is prior art with respect to this application only under 35 U.S.C. 102(e). In particular, Applicants have reviewed the parent application and the provisional application upon which *Gharachorloo* claims priority, and it appears that the subject matter relied upon in the Office Action for rejecting the pending claims is not supported by the provisional application. Thus, the effective filing date of *Gharachorloo* with respect to the pending claims is June 11, 2001, which is less than one year prior to the filing date of this application (March 6, 2002).

Since *Gharachorloo* and the present application are owned by the same entity, Applicants respectfully request that *Gharachorloo* be removed under 35 U.S.C. 103(c) as a reference for rejecting the pending claims. Specifically, Applicants respectfully assert that the subject matter of *Gharachorloo* is only prior art under 35 U.S.C. 102(e) and that the subject matter and the claimed invention were, at the time of the invention was made, owned by the same person. Therefore, Applicants respectfully request that the rejection of claims 3 – 6 and 10 - 24 under 35 U.S.C. 103(a) as being unpatentable over *Siegel* in view of *Gharachorloo* be removed.

II. Rejections Under 35 U.S.C. §112, First Paragraph, (Presented for the First Time in the Final Office Action) are Confusing, Unclear and Unsupported by Facts

The final Office Action indicates that claims 1 and 3 – 24 stand rejected under 35 U.S.C. 112, first paragraph, in that “the use of ‘incrementing the value contained in the first register’ and ‘the first.....eight register’ are not described in the specification to enable one having ordinary skill in the art to make and use the invention.” (Final Office Action, page 2). Applicants respectfully traverse the rejection. In this regard (and as best understood by Applicants) Applicants respectfully assert that Table 1 of the Specification clearly discloses multiple registers, e.g., first through eighth registers. Additionally, the use of such registers also is described as follows:

The registers identified in Table 1 are used by the Data Mover 500 to manage the transfer of data between the host 102 and the Storage Medium 104. A data transfer between the host 102 and the Storage Medium 104 is initiated in response to the Host Interface 400 receiving a read or write command from the host 102. After the Host Interface 400 receives a read or write command from the host 102, the Host Interface 400 interrupts the microprocessor 201 which loads certain registers of the modules Host Interface 400, Data Mover 500, and Storage Medium Interface 600 and then activates them (the modules 400, 500, and 600). After being activated, the Data Mover 500 sends a request for a block of data to the Host Interface 400 (for a write operation) or a request for a sector of data to the Storage Medium Interface 600 (for a read operation). A request for a block from the Host Interface 400 is achieved by sending an H_XferBlk 403 signal to the Host Interface 400, whereas a request for a sector from the Storage Medium Interface 600 is achieved by sending an SMI_XferSect 508 signal to the Storage Medium Interface 600.

For a read operation, if there is room in the data transfer buffer 205 and if the value of **DXSC 503** is greater than 0, then the Data Mover 500 requests that a sector of data be transmitted from the Storage Medium 104 to the buffer 205. The Data Mover 500 performs this request by sending an SMI_XferSect 508 signal to the Storage Medium Interface 600. The Data Mover 500 also tracks the progress of the sector transfer by managing the DXSC 503, which the Data Mover 500 decrements by 1 after each successful sector transfer from the Storage Medium 104 to the buffer 205. Eventually the DXSC 503 will go to 0, and the Data Mover 500 will stop transmitting data transfer requests to the Storage Medium Interface 600. Similarly, for a write operation, as long as there is room in the data transfer buffer 205 and the value of **HXSC** is greater than the value of **SPB 504**, the Data Mover 500 hardware will continue to request that a block of data be transmitted from the host 102 to the buffer 205 by sending an H_XferBlk signal to the Host Interface 400. The Data Mover

500 will also track the progress of the transfer by managing the HXSC 502, which is decremented by the value of SPB after each successful block transfer from the host 102 to the buffer 205. Eventually the HXSC 502 will go to 0, and the Data Mover 500 will stop transmitting data transfer requests to the Host Interface 400.

Data transfers between the data transfer buffer 205 and the Host Interface 400 or Storage Medium Interface 600 are preferably in units of longwords (e.g., 4 bytes). As each longword is transferred, Data Mover 500 hardware decrements either the *Host_LW_Ctr 513* or the *SMI_LW_Ctr 514* depending on whether the transfer is to/from the host 102 or the Storage Medium 104. In addition, word counters internal to the Host Interface 400 and Storage Medium Interface 600 are decremented. At the end of a sector transfer to/from the Storage Medium 104, the Storage Medium Interface 600's internal word counter goes to 0, prompting it to send the sector acknowledgment *SMI_SectXferred 509* to the Data Mover 500, which is expecting this signal because its own SMI_LW_Ctr 514 has gone to 0. If there are more sectors to be transferred (i.e., if the value of DXSC 503 is greater than 0), then upon receipt of the SMI_SectXferred 509 signal, the Data Mover 500 hardware reloads the SMI_LW_Ctr 514 from the register *SMI_LW_PerSect 507* and issues another SMI_XferSect 508 signal to the Storage Medium Interface 600. Similarly, at the end of a block transfer to/from the host 102, the internal word counter *WordCtr 402* of the Host Interface 400 goes to 0, prompting the Host Interface 400 to send the block acknowledgment *Host_BlkJferred 404* to the Data Mover 500 which is expecting this signal because its Host_LW_Ctr 513 has also gone to 0. If there are more blocks to be transferred, then upon receipt of the Host_BlkJferred 404 signal, the Data Mover 500 hardware reloads the Host_LW_Ctr 513 from the register *Host_LW_PerBlk 506* and issues another Host_XferBlk 403 signal to the Host Interface 400.

(Specification at page 3, line 9 to page 7, line 20). (Emphasis added).

Based on the foregoing, Applicants respectfully assert that the requirements of 35 U.S.C. 112, first paragraph, are clearly satisfied with respect to the use of such multiple registers. Therefore, Applicants respectfully request that the rejection be removed.

Further, Applicants respectfully assert that “incrementing” in addition to being recited in Applicants’ originally-filed claims (thereby constituting a portion of Applicants’ disclosure), uses the synonymous term “increased” such as follows:

After the SMI_SectXferred 509 signal is received by the Data Mover 500, the value of DXSC 503 is decreased by 1 and the value of BuffSects 505 is *increased* by 1, as indicated in step 714.

(Specification at page 9, lines 21 – 23). (Emphasis added).

After the SMI_SectXferred 509 signal is received by the Data Mover 500 from the Storage Medium Interface 600, the value of DXSC 503 is

decreased by 1 and the value of BuffSects 505 is *increased* by 1, as indicated in step 807.
(Specification at page 11, lines 6 - 9). (Emphasis added).

Based on the foregoing, Applicants respectfully assert that the requirements of 35 U.S.C. 112, first paragraph, are clearly satisfied with respect to the use of incrementing of a register. Therefore, Applicants respectfully request that the rejection be removed.

In conclusion, Applicants respectfully assert that the rejections, having been shown improper, should be removed and that the claims should be placed in condition for allowance.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to: Assistant Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450,

on 11/18/05. Stephanie Riley
Signature